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REMARKS

The Office Action mailed September 15, 2003 (Paper No. 0903) has been carefully reviewed and the foregoing amendments are made in response thereto. In view of the following remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Status of the Claims

Claims 1-9 are pending in the instant application. Claims 10-20 have been canceled.

The Rejection of Claims 1-2 and 5-9 under 35 U.S.C. § 102(e)

A. Claims 1-2 and 5-9 are rejected under 35 U.S.C. 102 (e) as being anticipated by Hashimoto *et al.* (U.S. Patent No. 5,776,672, issued July 7, 1998).

The Office Action alleges that there is no difference between the “base plate” disclosed in the ‘672 patent and the chip required by the pending claims. In a recent Federal Circuit case, the Court stated that dictionaries provide guidance for interpreting the plain meaning of a claim term. *Texas Digital Sys. v. Telegenix Inc.*, 308 F.3d 1193, 1202 (Fed. Cir. 2002) (Dictionaries, encyclopedias and treatises are particularly useful resources to assist the court in determining the ordinary and customary meanings of claim terms.) Accordingly, Applicants respectfully point out that the chip required by the claims is not the same as the base plate disclosed in the ‘672 patent. For instance, the only examples of a base plate provided in the ‘672 patent are in Examples 30 & 31, which discuss a graphite surface 5 cm x 5 cm in size and a glass plate 5 cm x 5 cm in size, respectively. Figure 6 shows a schematic diagram of the 5 cm x 5 cm graphite surface used in Example 30. The definition of a chip found in the American Heritage Dictionary is “a minute slice of a thin semiconducting material processed to have specified electrical characteristics.” The American Heritage College Dictionary, Second Edition, Copyright 1985, page 267. The base plate disclosed in the '672 patent cannot be equated with a chip because it is not a minute slice of a semiconducting material. Something that is minute is exceptionally small or tiny. It would be unreasonable to assert that a 5 cm x 5 cm plate is exceptionally small or tiny. Applicants note that the passage quoted in the Office Action (page 4) as describing the chip recited in the claims acknowledges that it is a “small substrate surface.”

Accordingly, Applicants respectfully request the withdrawal of the rejection of claims 1, 2, and 5-9 over the '672 patent.

B. Claims 1-9 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,342,359 to Lee *et al.* (the '359 patent).

Applicants respectfully point out that the '359 patent does not disclose the claimed invention. The '359 patent discloses immobilizing a probe DNA and an electrochemiluminescent material (which can be derivatives of $\text{Ru}(\text{bpy})_3^{2+}$ or $\text{Os}(\text{bpy})_3^{2+}$) on a chip followed by exposure to a target DNA and then a solution of an intercalating agent to generate electrochemiluminescence. Claim 1, however, requires exposure of the electrochemiluminescent reaction fluid to the chip after the probe DNA has been hybridized with a target DNA and intercalated with an intercalating agent. This is specified in step (d) of claim 1, which states "introducing an electrochemiluminescent reaction fluid into the chip having the hybridized DNA with an intercalated intercalator." Unlike the claimed invention, the '359 patent requires the electrochemiluminescent material to be immobilized on the chip. Accordingly, since the '359 patent does not disclose each of the steps recited in the claimed invention, the '359 patent does not anticipate the claimed invention.

Applicants respectfully request withdrawal of the rejection of claims 1-9 as being anticipated by the '359 patent.

Rejection of the Claims Under § 103(a)

Claim 4 is rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent 5,776,672 to Hashimoto *et al.* (the '672 patent) in view of U.S. Patent 6,264,825 to Blackburn *et al.* (the '825 patent).

The '672 patent has been discussed above. Again, the '672 patent does not teach immobilizing DNA on a chip. The '825 patent does not cure the deficiencies of the '672 patent because there is no motivation to combine the patents. The '825 patent is directed to target binding and detection by electronic means. The '825 patent does not teach immobilizing DNA on a chip and detection of the immobilized DNA by electrochemiluminescence. Detection of DNA hybridization using the electronic transfer moiety as the electronic means, as described in

the '825 patent is not related to the detection of DNA hybridization by electrochemiluminescence. Accordingly, since the two references are directed to unrelated inventions, there is no motivation to combine the two references.

Thus, Applicants respectfully request withdrawal of the rejection.

Double Patenting Rejection

Claims 1-8 remain rejected under the judicially created doctrine of obviousness type double patenting over the '359 patent discussed above.

As discussed previously, the steps recited in the pending claims distinguish the invention over the '359 patent and make them patentably distinct. The claims of the '359 patent involve immobilizing the probe DNA and electrochemiluminescent material on a chip before introducing the intercalating agent. However, claim 1 requires the introduction of an electrochemiluminescent reaction fluid into the chip after the hybridized DNA has been intercalated with an intercalating agent. Unlike the '359 patent, the present invention does not immobilize the electrochemiluminescent material on a chip and does not expose the electrochemiluminescent material to the DNA until DNA has been intercalated with an intercalating agent. Thus, the claims of the pending application are patentably distinct from the claims of the '359 patent.

Applicants respectfully request withdrawal of the rejection.

Conclusion

In view of the foregoing remarks, Applicants respectfully request withdrawal of all outstanding rejections and early notice of allowance to that effect. Should the Examiner believe that a telephonic interview would expedite prosecution and allowance of this application, she is encouraged to contact the undersigned at her convenience.

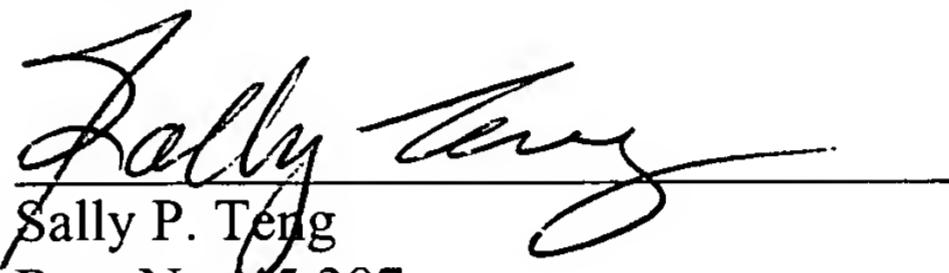
Applicants believe that no fees are required with this filing, however, except for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time

fees, or credit any overpayment to Deposit Account No.50-0310. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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By:



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Second College Edition

The
**American
Heritage
Dictionary**



nests in chimneys.
ee.

n-pān'zē) *n.* An animal of Africa, having greater than a high degree of

on of the lower jaw.
To pull (oneself) up by a horizontal bar

To place (a violin) in chatter. 2. To chin

tin or ceramic ware, tin ware.

chinensis, native to, variously colored

teading tree, *Melia* for its white or purple, *Sapindus marginatus*, Mexico, and the fruit of a chinaberry.

Chinese man.

hat has fragrant red

ester of many culti-

hood inhabited by

e that is made of

[Sp. *chinche* < Lat.

insect, *Blissus leucoloma* and grasses.

hīng'kē-) *n.* A bullock of southern Africa, with yellow flowers. [Orig.

rellike rodent, *Chinchilla*

South America and has ale-gray fur. b. The cloth of wool and

: Aymara.]

hīng'-) *n.* A type of

at runs wild on certain Chincoteague Is-

me. b. A cut of meat

edge or crest. 3. The

id bottom of a flat-

eschine, of Germanic

taining to China, its

Chin s. 1. a. A na-

n of Chinese ances-

chinked, chink·ing, chinks. To make or cause to make a chink. [Imit.]

Chlink (chīngk) *n.* Offensive Slang. A Chinese. [Perh. alteration of CHINESE.]

chi·nō (chē'nō, shē'-) *n.*, pl. -nos. 1. A coarse, twilled cotton fabric used for uniforms and sports clothes. 2. **chinos.** Boys' and men's trousers made of chino. [Am. Sp., toasted (from its original tan color).]

chi·nol·se·rie (shēn'wāz-rē') *n.* 1. A style in art reflecting Chinese influence through use of elaborate decoration and intricate patterns. 2. An object reflecting Chinese artistic influence. [Fr. < *chinois*, Chinese < *Chine*, China.]

Chi·nook (shī-nōōk', chi-) *n.*, pl. **Chinook** or -nooks. 1. a. A tribe of North American Indians formerly inhabiting the Columbia River basin in Oregon. b. A member of this tribe. c. The Chinookan language of the Chinook. 2. **chinook.** A moist, warm wind blowing from the sea on the Oregon and Washington coasts. 3. **chinook.** A warm, dry wind that descends from the eastern slopes of the Rocky Mountains, causing a rapid rise in temperature. [Salish *c'inuk*.]

Chi·nook·an (shī-nōōk'ān, chi-) *n.* A North American Indian language family of Washington and Oregon. —adj. Of or pertaining to the Chinook Indians, their language, or their culture.

Chinook Jargon *n.* A pidgin language combining English, French, Chinook, and other Indian dialects that was formerly used by Indians and fur traders of the Pacific Northwest.

Chinook salmon *n.* A salmon, *Oncorhynchus tshawytscha*, of northern Pacific waters, valued as a food fish.

chin·qua·pin (chīng'kā-pīn') *n.* 1. A small, shrubby tree, *Castanea pumila*, of the eastern United States. 2. A large evergreen tree, *Castanopsis chrysophylla*, of the Pacific Coast of North America. 3. The nut of a chinquapin. [Of Algonquian orig.]

chintz (chīnts) *n.* A printed and glazed cotton fabric, usually of bright colors. [Obs. *chints*, pl. of *chint*, calico cloth < Hindi *chīnt* < Skt. *citra-*, variegated.]

chintz·y (chīnt'sē) *adj.* -i·er, -i·est. 1. Of, relating to, or decorated with chintz. 2. Gaudy; trashy; cheap.

chip¹ (chīp) *n.* 1. A small piece broken or cut off. 2. A crack or other mark caused by chipping. 3. a. A small disk or counter used in poker and other games to represent money.

b. **chips.** Slang. Money. 4. **Electronics.** A minute square of a thin semiconducting material, such as silicon or germanium, doped and otherwise processed to have specified electrical characteristics, esp. such a square before attachment of electrical leads and packaging as an electronic component or integrated circuit. 5. A thin, brittle slice of a food: *a potato chip*. 6. **chips.** Chiefly Brit. French-fried potatoes. 7. Wood, palm leaves, straw, or similar material cut and dried for weaving. 8. A fragment of dried animal dung, used as fuel. 9. Something that is worthless. 10. A chip shot in golf. —v.

chipp d, chip·ping, chips. —tr. 1. To break a small piece from: *chip a tooth*. 2. To chop or cut with an ax or other implement. 3. To shape or carve by cutting or chopping: *... To become broken off.*

chip shot, the green.

chi·ral (kī'ēl) *adj.* asymmetri-

-AL.]

chi·rho (kī'ēl) *adj.* consisting

rho (P), of

ments. [C] Christ.]

chiro- or

kheir, han-

chi·rog·ra-

pher *n.* -

chi·r ·ma

telling a I

palmistry

kheiromai-

—chi·ro·

Chi·ron (l)

Achilles,

chi·ro·pla-

chi·rop·o-

-POD +

chi·ro·pra-

which dis-

and man-

is the pro-

tikos, eff-

chi·r p·t·

der Chir-

order na-

chirp (chīp)

by a sr-

chirp).

chirr (chīr)

crickets.

chir·rup

1. To ut-

sounds

sound w-

series o-

such as

chi·rur·g-

gien < G-

ERY.]

chis· I

used to-

-el·ing,

with a

by dec-

unethic-

caedere

chi·squ-

pothesi-

expect-